

ABSTRACT

A dielectric resonance element resonating in the TE<sub>01</sub>  $\delta$  mode and a protrusion portion disposed in a direction perpendicular to the bottom surface of the dielectric resonance element are integrally molded, and the side face at the outer periphery of the protrusion portion is tilted such that the area on the bottom-surface side of the dielectric resonance element is larger than the area of the lower surface of the protrusion portion. Because of such a structure, the magnetic field of the dielectric resonance element spreads to the tilted portion of the side face at the outer periphery of the protrusion portion and around the tilted portion of the side face, and the magnetic field distribution increases under the dielectric resonance element. Even if an input-output electrode is disposed at a location away from the protrusion portion, the input-output electrode is strongly coupled to the dielectric resonance element, resulting in a sufficient coupling.